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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/904,950	07/12/2001	Yuichi Shimizu	9281-4115	4123

7590 09/15/2003

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EXAMINER

DINH, TUAN T

ART UNIT	PAPER NUMBER
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2827

DATE MAILED: 09/15/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/904,950

Applicant(s)

SHIMIZU ET AL.

Examiner

Tuan T Dinh

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-9 is/are allowed.
- 6) ☒ Claim(s) 10-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 July 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

The office action mailed on 02/27/03 is hereby withdrawn.

Drawings

1. Figure 16 should be designated by a legend such as **--Prior Art--** because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

2. Claims 10, 12-13 are objected to because of the following informalities:

Claim 10, line 16, change "an input and output terminal" to --input and output terminals--.

Claims 12-13, lines 6-7, change "an input and output terminal" to --the input and output terminals--.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kane et al. (U. S. Patent 4,761,621) in view of Makino et al. (U. S. Patent 5,923,224).

The figures and reference numbers referred to in this office action are used merely to indicate an example of a specific teaching and are not to be taken as limiting.

As to claim 10, Kane et al. disclose an electronic circuit unit having a circulator (column 3, line 16) as shown in figures 1-8 comprising:

a circuit board (301, column 3, line 62) obtained by laminating a plurality of dielectric substrates (303, column 3, line 63);

first, second, and third central conductors (leads 313, 401, 403-figure 4A) provided for the plurality of dielectric substrates at intervals of 120 degrees and partially intersecting with each other in the upper and lower directions;

a magnet (325) and a ferrite member (305) disposed above and below the intersection of the central conductors (see figure 3B);

first and second yokes (327,314-figure 3B) for covering the outside of the magnet; and covering the outside of the ferrite member, wherein one end of each of the first, second, and third central conductors (313,401,403) serves as input and output terminals, the ends being disposed at intervals of 120 degrees; and

adjacent input and output terminals are connected by external components (407, 409, 411, column 5, line 12).

Kane et al. do not teach the external components (407, 409, and 411) being inductor elements.

Makino et al. shows a nonreciprocal circuit device as shown in figures 1-8 comprising central conductors (51-53, see figures 1-2) having input and output terminals (71, 72, column 7, lines 10-11), the input and output terminals are connected by inductor elements (L_f , column 7, lines 5+).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to employ input and output terminals connected by inductor elements in the electronic circuit unit of Kane et al., as taught by Makino et al., for the purpose of providing a low pass filter structure to reduce extraneous emissions from the electronic circuit unit.

As to claim 11, Kane et al. disclose the circulator having electrically conductive patterns (405, figure 4B) connected to input and output terminals, and microstriplines (column 4, lines 35+) for connecting the electrically conductive patterns provided on the circuit board.

Kane et al. do not disclose the microstriplines formed of the inductive elements. Makino shows inductor microstriplines (L_f).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to employ inductor microstriplines in the electronic circuit unit of

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Kane et al., as taught by Makino et al., for the purpose of providing input and output transmission lines on a circuit board.

As to claims 12-13, Kane et al. disclose all the limitations of the claimed invention as detailed above, except for the resonant frequency of a parallel resonant circuit formed of the inductive elements and capacitive components generated between the central conductors by the intersections of the central conductors being made equal to the frequency of a signal input to the input and output terminals.

Makino shows a structure of the nonreciprocal circuit device as shown in figures 4-8 having the resonant frequency of a parallel resonant circuit formed of the inductive elements (L_f) and capacitive components (C_1 , C_2 , C_f , C_o , and C_p) generated between the central conductors by the intersections of the central conductors being made equal to the frequency of a signal input to the input and output terminals (71, 72), see column 7, lines 55-67, column 8, lines 1-24, column 10, lines 19-57.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to employ the resonant frequency of a parallel resonant circuit (inductors + capacitors) which is equal to the frequency of a signal input to input and output terminals in the electronic circuit unit of Kane et al., as taught by Makino et al., in order to prevent shorting and overloading circuit components on the circuit board.

Allowable Subject Matter

5. Claims 1-9 are allowed.

The following is an examiner's statement of reasons for allowance:

The references cited in this and the previous office action disclose an electronic circuit unit having a circulator and some other elements; however, they do not disclose a plurality of through holes vertically passing through the circuit board are filled with a magnetic material; and a magnetic path is formed by the magnetic material between the first and second yokes disposed above and below the circuit board so as to cover the magnet and the ferrite member, to make a closed magnetic circuit, as claimed. Also, there is no suggestion to modify the references to include these limitations

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Response to Arguments

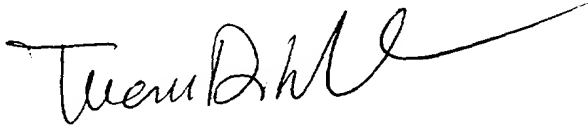
6. Applicant's arguments with respect to claims 1-13 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan T Dinh whose telephone number is 703-306-5856. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kammie Cuneo can be reached on 703-308-1233. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-1341 for regular communications and 703-305-1341 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

A handwritten signature in black ink, appearing to read 'Tuan T Dinh', with a long horizontal flourish extending to the right.

TD
August 26, 2003.